Instruction Bulletin
30598-375-01A1
July 1997

24 VDC 50 VA 16 Relay Output Base Unit

TBX DSS1625

User's Manual

SQUARE D

⚠ WARNING

UNINTENTIONAL EQUIPMENT OPERATION

To avoid improper handling of equipment:

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise should be allowed to program, install, alter, and apply this product.

Failure to observe this instruction can result in death or serious injury.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

To avoid improper handling of equipment:

1.Never remove this device while power is ON.

2.Do not subject to static discharge. This module contains electronic components that are very susceptible to damage from electrostatic discharge.

Failure to observe this instruction can result in equipment damage.

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Electrical equipment should be serviced only by qualified electrical maintenance personnel. No responsibility is assumed by Schneider S.A. for any consequences arising out of the use of this material.

DESCRIPTION

The TBX DSS1625 is a distributed output base unit with sixteen 24 VDC digital relay outputs. This base unit may be coupled with a compatible communications interface to form a complete distributed block, which is well suited for the control of discrete field devices located some distance from a host programmable logic controller (PLC). The application of distributed I/O blocks saves installation and maintenance cost, compared to direct wiring of field devices to a centralized I/O system over long distances.

The TBX DSS1625 base unit can be used with either SY/MAX® or Telemecanique PLCs, through the use of a compatible communications interface (top hat). The interface mounts directly on the base unit, allowing the PLC to read and write to the I/O points through a suitable control network. The Class 8030 Type CRM275 Distributed Remote IO/NET™ Interface (DRIO) supports connection to the IO/NET control network as part of the PASSPORT™ I/O System. The TBX LEP020 and TBX LEP030 communications interfaces support connection to the FIPIO network. The TBX CBS010 Expansion Interface allows inexpensive connection of a second TBX base unit to a single communications top hat.

The TBX DSS1625 base unit supports the following TBX I/O features:

- *Sixteen 50 VA Relay Output Points* - Suitable for use with discrete field devices such as solenoids, contactors and pilot lights.
- *Output Fallback State Control* - Provides point-by-point control over output states when communication is lost.
- *24 VDC Logic Power Supply* - Converts to proper voltage levels for top hat and on-board electronics; may be wired independently from input or output power supplies.
- *Removable Field Wiring Terminal Strip* - Mounts securely to the base unit without use of screws or fasteners.

This bulletin contains information on the installation and application of the TBX DSS1625 base unit with either SY/MAX or Telemecanique PLCs. For information about programming a SY/MAX PLC for use with the TBX DSS1625 base, refer to the Class 8030 Type CRM275 (DRIO) instruction bulletin (#30598-380). For information about programming a Telemecanique PLC for use with the TBX DSS1625 base, refer to the Telemecanique TBX Distributed I/O Modules manual (TSX DM TBXV52E). Please read and keep all the appropriate manuals close at hand when using TBX base units.

The top hat receives +24 VDC from the primary base, and converts it to logic power for the top hat and base. For more information on the DRIO Interface and the Expansion Interface, refer to bulletins 30598-380 and 30598-371 respectively. You may use the TBX SUP10 power supply to provide 24 VDC for TBX bases and sensors from an AC source.

SPECIFICATIONS

Base Unit Power

Operating voltage: 24 VDC nominal; 19-30 VDC
Operating current at nominal voltage:

Configuration	Nominal
Base only	125 mA
Base with comms interface	195 mA
Base, interface and expansion base	310 mA

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Outputs

Outputs per base unit	16
Number of output commons	8
Isolation rating	1500 V rms between outputs and earth terminal
Voltage operating range	19-30 VDC 24-264 VAC
Maximum output load ratings	
DC: Resistive	24 W (0.2×10^6 operations)
DC: Inductive	10 W (1×10^6 operations)
AC:	

Resistive		
Load	**Voltage**	**Operations**
1 A	110/220	0.2×10^6
0.5 A	110/220	2×10^6
1 A	24/48	0.5×10^6
2A	24	0.2×10^6

Inductive		
Load	**Voltage**	**Operations**
50 VA	110/220	1×10^6
0.5 A	24/48	1×10^6
10 VA	48/220	1×10^7
1 A	24	0.2×10^6

Maximum surge current	30 A
Maximum turn ON time	10 ms
Maximum turn OFF time	20 ms
I/O status indication	Visual indication is provided by communications interface; LED per input point
Output protection	None

Environmental and Physical

Operating temperature rating	0 to 60°C (32 to 140°F)
Storage temperature rating	-40 to 80°C (-40 to 176°F)
Humidity rating	5-95% RH, non-condensing
Dimensions (H x W x D):	See Figure 1
Base w/ terminal strip	3.43 x 9.25 x 2.4 in (87 x 235 x 61 mm)
Base w/comms. interface or Base w/ CBS010 Interface	3.43 x 9.25 x 2.91 in (87 x 235 x 73.9 mm)
Weight (Base unit only)	2.2 lb (1.0 kg)

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Agency Compliance

Complies with UL508, CSA C22-2 requirements, and FM Class I, Division 2 Hazardous Locations approval requirements

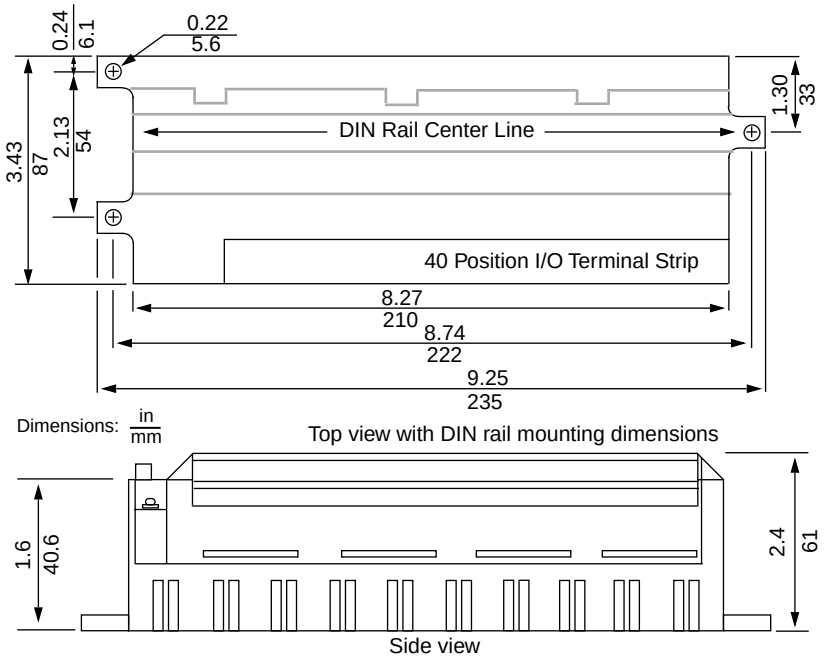

Figure 1: Dimensions

BASE UNIT WIRING

Output devices are wired to the terminal strip on the top of the base unit. Figure 2 shows the terminal strip pin-out for the base unit.

Two terminal strip labels are packaged with the base unit. If you are using the base unit with a SY/MAX system, use the terminal strip label with I/O numbered from **1-16**; if you have a Telemecanique system, use the terminal strip label with I/O numbered from **0-15**. These are illustrated in Figure 2.

The TBX DSS1625 provides separate terminals for base voltage and control output voltage. These terminals may be connected to a common 24 VDC supply or may be sourced by independent supplies (terminals 4 and 1 must be at the same potential).

⚠ WARNING

INCORRECT WIRING

The base must be properly grounded before applying power. Equipment MUST be grounded using the screw provided.

Do not use metallic conduit as a ground conductor.

Failure to observe these instructions can result in death or serious injury.

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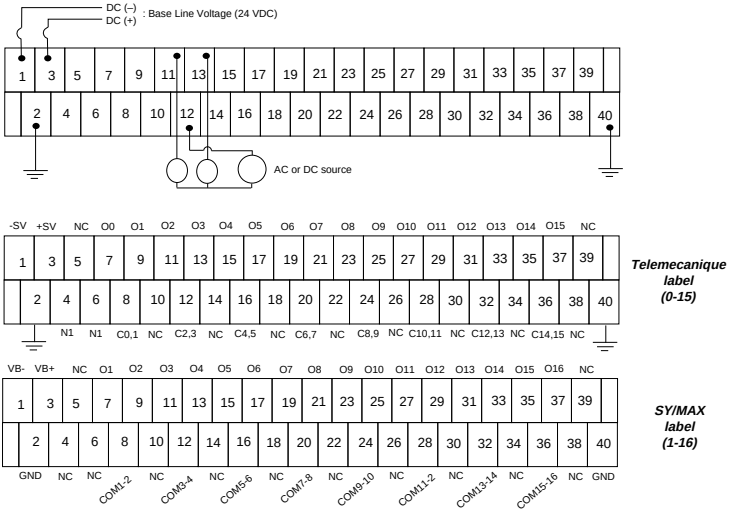
DC (–)
DC (+)
: Base Line Voltage (24 VDC)
AC or DC source
-SV +SV NC O0 O1 O2 O3 O4 O5 O6 O7 O8 O9 O10 O11 O12 O13 O14 O15 NC
N1 N1 C0,1 NC C2,3 NC C4,5 NC C6,7 NC C8,9 NC C10,11 NC C12,13 NC C14,15 NC
Telemecanique label (0-15)
VB- VB+ NC O1 O2 O3 O4 O5 O6 O7 O8 O9 O10 O11 O12 O13 O14 O15 O16 NC
GND NC NC COM1-2 NC COM3-4 NC COM5-6 NC COM7-8 NC COM9-10 NC COM11-2 NC COM13-14 NC COM15-16 NC GND
SY/MAX label (1-16)

Figure 2: TBX DSS1625 Wiring Connections & Terminal Block Signal Assignments

⚠ WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Be sure to use the appropriate SY/MAX or Telemecanique terminal strip label when wiring inputs or outputs. Two terminal strip labels are packaged with the base unit. If you are using the base unit with a SY/MAX system, use the terminal strip label with I/O numbered from 1-16; if you have a Telemecanique system, use the label with I/O numbered from 0-15.

Failure to observe these instructions can result in death, serious injury, or equipment damage.

MOUNTING INSTRUCTIONS

You can mount the base unit horizontally or vertically, as shown in Figure 3.

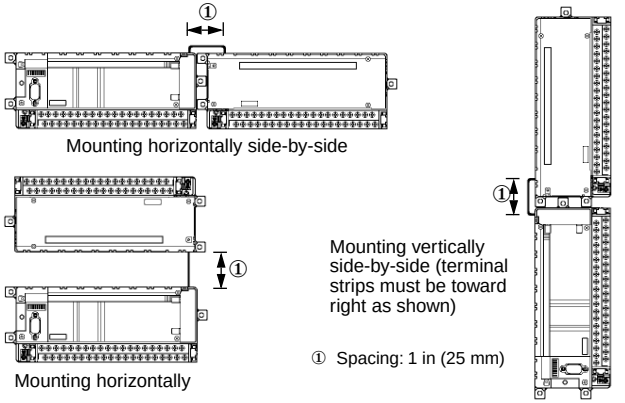

Figure 3: Base Unit Orientation Examples

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To mount the base unit on a 35-mm DIN rail:

1. Hook the base unit onto the rail as shown in Figure 4.
2. Press down and toward the DIN rail until the base unit is secure. (There are two spring clips in the top of the groove on the back of the unit.)

To remove the base unit from a DIN rail:

1. Press down on the base unit.
2. Swing the unit outward and lift it off the rail at the same time as pressing down.

NOTE: If the base unit is to be used in a high-vibration environment, mounting the unit on a panel rather than a DIN rail provides more stability. Use cable ties to secure the communication cable.

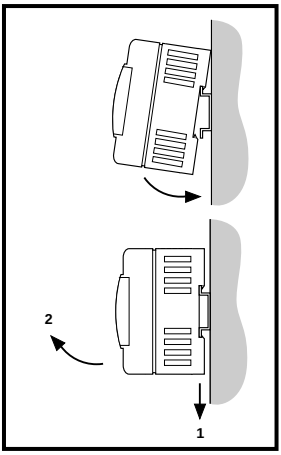
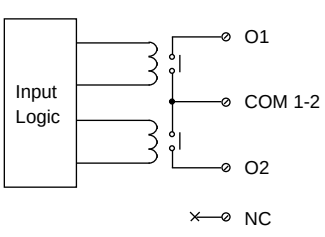


Figure 4: Mounting and Removing the Base Unit

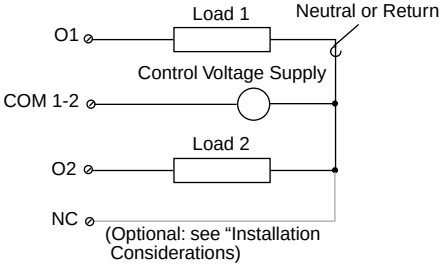
INSTALLATION AND APPLICATION CONSIDERATIONS

NOTE: The base unit is not compatible with the Type CRM270 interface module.

- *Base Voltage* - The TBX DSS1625 base requires a 24 VDC operating voltage to be applied between terminals 3 and 1.
- *Grounding* - The green ground wire must be connected to the ground screw beside the terminal block.
- *Jumper Wire* - A #16 AWG wire must be installed between terminals 2 and 40.
- *Commons* - The TBX DSS1625 base has one common terminal for every two outputs.
- *Fusing* - The base and control power lines must be externally fused by the user.
- *External Wiring* - Each terminal accommodates up to two #16 AWG gauge wires.
- Freeze State Control - With TBX Distributed I/O, you may also have the DRIO set the outputs to a pre-defined state. By defining the output fallback states and enabling Output Fallback, the DRIO will set the outputs to the fallback state when communication with the host PLC is lost. When communications are restored, the outputs return to normal operation. Refer to the Type CRM275 and TSX manuals.



Simplified schematic for relay output



Method of connecting loads

Figure 5: Simplified Schematic & Output Connections for DSS1625 Base Unit

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REGISTER USAGE WITH SY/MAX CLASS 8030 TYPE CRM275 DRIO MODULE

The TBX DSS1625 base unit supports the assignment of two registers for I/O, diagnostic and configuration registers. For more information about base unit register usage, refer to the DRIO instruction bulletin (#30598-380).

This base unit supports output fallback state control (Register 4, bits 5-6; Register 6). Refer to Chapter 4 of the DRIO instruction bulletin for more information about register assignments.

⚠ WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Do not use reserved registers and bits in PLC programs. Erratic operation may result.

Failure to observe this instruction can result in death, serious injury, or equipment damage.

GROUPE SCHNEIDER

■ Merlin Gerin ■ Square D ■ Telemecanique

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